People and things

Bookshelf

Weak Neutral Currents - The Discovery of the Electro-Weak Force, edited by David B. Cline, Addison Wesley (Frontiers of Physics Series), ISBN 0-201-93347-0

Addison Wesley's Frontiers of Physics Series began in 1961, and David Cline's anthology on weak neutral currents is the 97th volume in the series. 'Frontiers' books usually make extensive use of lecture notes or reprints, and Cline's volume takes the latter route. It is divided into 9 chapters: The Weak Interaction Uncovered; Forty Years of Weak Interactions; The Search for Other Forms of Weak Interaction; The Electroweak Interaction Picture Emerges; The Discovery of Weak Neutral Currents; Other Weak-Neutral Current Processes, Parity Violation in Weak Neutral Currents, and $\sin^2\theta_w$; On to the W and Z Particles; High Precision Studies of the Electroweak Force; Back to the Future with the Higgs Boson.

Apart from the first, which is an introduction, each chapter has a useful introduction by neutral current enthusiast Cline (see November 1997, page 18) and includes several reprints. As well as predictable classic papers, the collection includes some gems, notably the historic but rarely seen March 1976 proposal by Carlo Rubbia, Peter McIntyre and Cline to build a proton-antiproton collider to search for the W and Z particles, and a Peter Higgs paper given at a 1993 Santa Monica meeting which takes the lid off the eponymous mechanism.

I found it very useful.

GF

Books received

Future High Energy Colliders, Editor Zohreh Parsa, AIP Conference Proceedings 397, ISBN 1-56396-729-4

Proceedings of a meeting held in Santa Barbara in October 1996 (see March 1997 issue of the CERN Courier, page 16).

The Interpretation of Quantum Mechanics and the Measurement Process, by Peter Mittelstaedt, Cambridge University Press 0 521 55445 4 £30/$44.95

A volume of interest to the more philosophically minded on how to live with the measurement dilemmas introduced by the orthodox interpretation of quantum theory.

Russian theorist Lev Okun (right) of Moscow's Institute of Theoretical and Experimental Physics was honoured with a special humanitarian award from a foundation set up by George Soros at a ceremony at SLAC, Stanford, on December 11. SLAC Associate Director Sidney Drell (left) presented the award on behalf of George Soros.

CERN Council

At the meeting of CERN's governing body, Council, in December, Luciano Maiani was elected the next Director General of the Organization, to take office on 1 January 1999, when the current Director General, Chris Llewellyn Smith, will have completed his five year mandate. A distinguished theorist, Luciano Maiani is currently President of the Italian INFN and has been President of CERN Council since January 1997.

At the same meeting, leading German science administrator and head of Germany's CERN delegation Hans C. Eschelbacher was elected President of CERN Council for an initial period of one year from 1 January 1998, replacing Luciano Maiani. Fernando Aldana of Spain was elected Vice-President of Council for one year, while Fernando Bello of Portugal was appointed Chairman of the Finance Committee and Leif Westgaard of Norway was elected Vice-Chairman of the Finance Committee, for the same one-year period.

Lev Okun honoured

A foundation set up by philanthropist George Soros honoured Russian theorist Lev Okun of Moscow's Institute of Theoretical and Experimental Physics with a special humanitarian award at a ceremony at SLAC, Stanford, on December 11.

With the award is a cash prize of $25,000. The award from The Open Society, created by Soros in 1992 to help the most talented scientists of the Former Soviet Union through their economic and political transition without having to leave their work or their country, recognizes Okun's "dedication and selfless devotion to the cause of Russian scientists". SLAC Associate Director Sidney Drell presented the award on behalf of George Soros. "The battle to save Russian science goes on and I can tell you no one has worked harder than Lev Okun," he said. The CERN Courier, which has long benefited from Okun's wisdom, adds its congratulations for a particularly merited award.

Austron OK?

The Austron high flux pulsed neutron source has been recommended as fundamentally suitable as a major scientific facility by a European Science Foundation panel.

Sited in Austria, the Austron would cover experiments in materials science, physics, chemistry, and biology. Accelerating light ions as well as protons, it would also support cancer therapy and research work.

Based on a proton machine producing neutrons by spallation, the 3000 million schilling (270 million Swiss francs) facility would be funded 2:1 by the European Commission and Austria. The home country, eager to have an international centre, has indicated its willingness to support the project.

It remains now to clarify Austron's complementarity to a planned German research reactor and to the new SINQ continuous neutron source at the Swiss PSI laboratory (March 1997, page 2).

Moscow's Institute of theoretical and Experimental Physics (ITEP) recently celebrated the 75th birthday of eminent nuclear and particle theorist Karen Ter-Martirosyan.

Development work for the Austron has been centred at CERN on the machine side and in Vienna for the targets and experiments.

On people

A recent seminar at Moscow's Institute of theoretical and Experimental Physics (ITEP) marked the 75th birthday of eminent nuclear and particle theorist Karen Ter-Martirosyan. From his teachers Yakov Frenkel and Lev Landau he inherited wide interests and a brilliant intuition. His accomplishments range from the theory of Coulomb excitation of nuclei, to the integral equation for the three-body problem (subsequently generalized by Faddeev), to field theory renormalization, to high energy strong interaction theory. He created a famous school, the first student being Vladimir Gribov. His list of disciples also includes A. Ansel'm, Yu. Simonov, A Kaidalov, A. Polyakov, A. Migdal, A. Zamolodchikov, ... Their greetings from all over the world joined the warmest wishes of ITEP colleagues and students from Moscow's Institute of Physics and Technology, where Ter-Martirosyan founded and headed for 35 years the Chair of Elementary Particle Physics.

David Schramm 1945 - 97

Prominent astrophysicist David Schramm died on 19 December while piloting his airplane. A gentle giant, he came very near to representing the US in wrestling in the 1968 Olympics, but was soft spoken, using intellectual power, rather than physical, to advance his scientific arguments.

A product of William Fowler's school at Caltech, he was naturally drawn towards nucleosynthesis and became a leading proponent of the astrophysical implications of Big Bang ideas. He stressed the cosmic distributions of light nuclei in general as tracers of the early Universe, and in particular the significance of deuterium as a 'baryometer' of cosmic processes, implying the existence of exotic dark matter.With Jim Gunn and Gary Steigman in 1977, he used astrophysical helium measurements to provide a limit to the number of lightweight neutrino species, work refined in the late 1980s in time for LEP's 1989 demonstration that there are only three such particles.

Schramm was a personification of the symbiosis between particle physics and cosmology and was a frequent visitor to accelerator laboratories, where his objective seminars were widely appreciated.

In 1974 he moved to Chicago, and his influence helped introduce cosmology and astrophysics research at nearby Fermilab.

His physical and intellectual stature

Kalervo Laurikainen 1916 - 97

made him a natural centre of attraction at major meetings. A gifted communicator as well as a scientist, his talks and papers enabled many particle physicists to learn about cosmology and astrophysics. He wrote several popular books - 'The Shadows of Creation', with Michael Riordan, and 'From Quarks to the Cosmos' with Leon Lederman.

Kalervo Laurikainen 1916 - 97

Distinguished Finnish physicist Kalervo Laurikainen died on 13 July after a long illness. Laurikainen was a founding father of theoretical physics, nuclear physics, high energy physics and history and philosophy of physics in Finland. In recent years he became a central figure in promoting the cultural and spiritual significance of science rather than the technical or commercial aspects of fundamental research.

After his military duty was extended by the Second World War, Laurikainen worked at Helsinki and Turku in Finland, and Zurich, Lund and Copenhagen. In 1960 he became the chair professor of nuclear physics at the University of Helsinki (later known as the Department of High Energy Physics). It was Laurikainen who built contacts to the Joint Institute of Nuclear Research (JINR) in Dubna and to CERN and it was due to his efforts that the Research Institute of Theoretical Physics, the Computing Bureau for Physics and experimental high energy physics were established in Finland.

Until his death, Laurikainen actively pursued a fresh career in philosophy, organized conferences and published books on the Copenhagen interpretation of quantum mechanics and on the correspondence of Wolfgang Pauli with Markus Fierz.

From Risto Orava

Joseph Ballam 1917-97

Joseph Ballam, Emeritus Professor and long-time Associate Director for the Research Division at the Stanford Linear Accelerator Center (SLAC) died on December 14 of emphysema-related complications. He was 80 years old.

He worked for the US Navy's Bureau of Ships during World War II and subsequently earned his PhD at Berkeley in 1951 for studies on cosmic rays. After working at Princeton and Michigan State, he joined SLAC at its inception in 1961, becoming its first Research Director two years later. During his lengthy tenure at SLAC, Ballam oversaw the efforts of some 300 physicists, engineers and technicians involved in the construction of major scientific instruments and analysis of the experimental data. He also led an experimental programme that built a rapid-cycling bubble chamber and matched it to the SLAC electron beam. This configuration extended by an order of magnitude the data flow available to physicists at many participating institutions. Ballam received a Guggenheim Fellowship, was a visiting scholar at Imperial College, London, the Ecole Polytechnique, Paris, and Columbia. He served on many committees for the US Department of Energy.

Throughout his long and productive life, Joe, as he was known to one and all, was esteemed for his acute intellect, kindness, and wisdom, as well as his steady and considered judgement. Although he often had to disappoint researchers who were vying for limited access to the SLAC accelerator, they always trusted that his decisions were wise and fair. He was a friend to all, and was always ready to provide whatever help and counsel that he could, both on a personal and a professional basis. He will be truly missed.

Wolfgang K. H. Panofsky

Hajime Ishimaru 1940 - 97

World renowned ultra-high vacuum expert Hajime Ishimaru died on 6 October 1997.

He pioneered the development of all the aluminium ultra-high vacuum materials for the successful TRISTAN electron-positron collider at the Japanese KEK laboratory. He studied nuclear physics and plasma physics at Hokkaido, Tohoku and Nagoya, and received one doctorate from Nagoya for his research on plasma physics and another from Tokyo for work on vacuum feedthrough in ultra-high vacuum and cryogenic environments.

After working on plasma and molecular beams for several years as

Hajime Ishimaru 1940 - 97

a Tokyo research associate, he joined KEK in 1972 and went on to make distinguished contributions to all the KEK accelerators, particularly their vacuum systems.

His monumental contribution to the all-aluminium TRISTAN vacuum system was the result of his expertise and passion for invention. During the past 25 years at KEK, he made many inventions in the field of ultra-high vacuum, with about 40 registered patents and over 100 pending.

He was also a technical consultant to numerous accelerator projects worldwide such as the Korean POSTECH 2 GeV synchrotron radiation source, DAFNE at the Italian Frascati laboratory, the Taiwanese 1.5 GeV synchrotron (SRRC), Spring-8 in Japan, and the terminated American SSC main ring vacuum tube. He also served as a member of the editorial board for the British Journal "Vacuum". Dr. Ishimaru received numerous awards and honours, including recognition from the American Vacuum Society, the Vacuum Society of Japan, and the British Vacuum Society.

His sudden death is an immeasurable loss not only to KEK but also to the world high energy community. His enchanting smile and generous heart are greatly missed.

CERN retirements

The end of 1997 marked the formal retirement of several prominent CERN staff members.

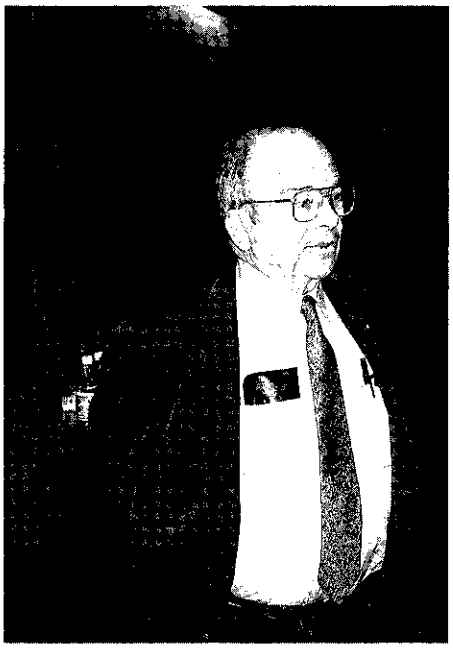
Research physicist Alan Wetherell joined CERN in June 1959, and went on to participate in a series of early experiments by a group working at the then new Proton Synchrotron. After studies at the Serpukhov accelerator in Protvino in the late 1960s and at the start-up of CERN's Intersecting Storage Rings in the early 1970s, Alan Wetherell became head of this group when Giuseppe Cocconi became a Director of CERN. The group became interested in weak interactions and joined with Klaus Winter to form the CHARM neutrino collaboration (CERN-Hamburg-Amsterdam-Rome-Moscow). Alan was appointed CERN's Experimental Physics Division Leader in 1981 and served for three and a half years. Subsequently he joined Ugo Amaldi and Jim Allaby in the Delphi collaboration at LEP, eventually taking responsibility for the hadron calorimeter which was mainly constructed under his guidance by a Russian team. His election as a Fellow of the UK Royal Society (FRS) signifies distinguished contributions to physics.

Fritz Ferger - retiring after 39 years at CERN

Having joined the laboratory in February 1959, Fritz Ferger's career at CERN lasted exactly 39 years. After studies in Stuttgart and Grenoble, he began at CERN in the Proton Synchrotron Accelerator Research Group under Arnold Schoch, where he soon became involved in development work for future storage rings. With the establishment of the Intersecting Storage Rings (ISR) Division in 1964, he was in charge of development and construction of power for the radiofrequency acceleration system. With the ISR operational in 1971, he became head of the ISR General Engineering Group, and in 1974 Head of ISR Division, where he remained until 1982. In 1983 he became Head of CERN's new Technical Inspection and Safety Commission, and in 1986 Head of the new Technical Support Division. When he stepped down from this post in 1997, he had spent 23 years as a CERN Division Leader.

At his retirement, he said 'If I wish to retain one single lesson, I would like to underline the importance and value of the existence of a dedicated group of inspired and enthusiastic physicists and engineers who explore what future accelerators and detectors should look like, what mechanisms and tools could be

During the visit of Hungarian President Arpad Goncz to CERN on 11 November, Michel Della Negra explains the workings of the CMS experiment for CERN's LHC proton collider.



Former SLAC Director Wolfgang ('Pief') Panofsky gave several seminars at CERN in November.

invented, readied and employed to unlock the secrets of Nature'.

Massimiliano Ferro-Luzzi took his Laurea *at La Sapienza in Rome in Edoardo Amaldi's nuclear emulsion group, carrying out pioneer work on antiproton reactions using emulsions exposed to beams from the Bevatron at Berkeley. Moving to Berkeley, he spent three years in Alvarez' legendary group before joining CERN's Track Chamber division in 1963.*

Prominent among many his bubble chamber experiments was the study of baryon resonances. At Berkeley Max played an important role in the discovery and elucidation of hyperon resonances, providing valuable input to the quark model. Max continued this research at CERN for over a decade, organizing several European collaborations studying kaon-nucleon collisions. These impressive results helped prepare the way for unitary symmetries. His career then turned from bubble chambers to electronic detectors, with tests on the first ICARUS prototype, the JETSET experiment at LEAR and the guidance of the first steps of the DIRAC experiment at the PS. Max served as secretary of CERN's Research Board from 1984 to 1997.

Intellectually strict, tempered by a degree of pragmatism in interpreting experiments, Max is a keen advocate of linguistic precision, has a highly individual view of the world and cultivates a scathing sense of humour.

Meetings

The 14th International HADRONS Conference, organized by the Bogolyubov Institute for Theoretical Physics, Ukraine Academy of Sciences, and dedicated to strong interaction at high energies (theory and experiment), will be held on the southern coast of the Crimea (Ukraine) from June 21-26. The coverage includes: large rapidity gap physics, polarization, spectoscopy and heavy flavours, collective properties of nuclear matter - with emphasis on future collider experiments - as well as advances in quantum field theory. Invited speakers include: V.Fadin, B.Gerasimov, W.Greiner, A.Kaidalov, B.Kopeliovich, L.Lipatov, U.Maor, N.Nikolaev, A.Slavnov, H.Stoecker. More information from: HADRONS, ITP, Kiev-143, Ukraine; fax: ++38 44 2665998; phone: ++ 38 44 2669123; E-mail: jenk@gluk.apc.org; http:// www.gluk.apc.org/hadrons

The 8th European Symposium on Semiconductor Detector, to be held at Schloß Elmau, Germany from June 14 - 17, will cover new developments in the field of radiation detectors. The conference programme covers particular detector concepts, readout electronics, device physics, detector technology, defects in base materials and devices and new applications for semiconductor detectors. Further information from the conference secretary: Irmgard Helfrich (Ms), MPI Halbleiterlabor, Paul-Gerhardt-Allee 42, 81245 München, Fax: 089/839400-11, e-mail: sds@mpe-garching.mpg.de, WWW: http://www.hll.mpe-garching.mpg.de/sds98

The Xth International Symposium on Very High Energy Cosmic Ray Interactions will be held from July 12-17 at the Laboratori Nazionali Del Gran Sasso, Assergi (Italy). Secretariat: E.Fantozzi, Laboratori Nazionali del Gran Sasso, INFN, 67010 Assergi (AQ) - Italy Phone: +39-862-437236; Fax: +39-862-437570; E-mail: FANTOZZI@LNGS.INFN.IT WWW HTTP://WWW.LNGS.INFN.IT/ choosing "Meetings and Seminars" and "ISVHECRI 98".

Michel Besse, centre, French Préfet de Région Rhône-Alpes (which includes the CERN site on French territory) hears an explanation from senior CERN physicist and at the time spokesman for the Delphi experiment, Daniel Treille (left). With them is Manfred Buhler-Broglin, administrator of CERN's LHC project.

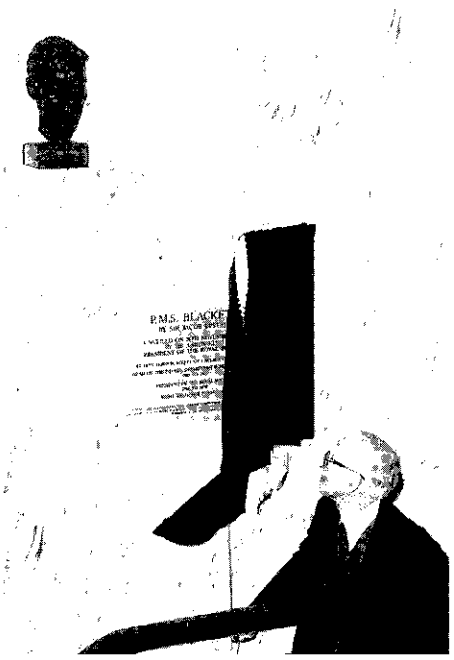
INPC98

The 1998 International Nuclear Physics Conference (INPC) will be held from August 24 - 28 at UNESCO, Paris.

This conference belongs to the series sponsored by the International Union of Pure and Applied Physics (IUPAP) held every three years. The last conferences were held in Beijing (1995), Wiesbaden (1992) and Sao-Paulo (1989). It will cover all areas of nuclear physics research and its applications with special emphasis on new directions and new opportunities. It will also celebrate the Centennial of the discovery of radioactivity by Henri Becquerel, and of the first radioactive elements by Pierre and Marie Curie. Special emphasis will be placed on the impact of nuclear science on society.

The Conference, with plenary, parallel and poster sessions, should give participants a broad vision of nuclear physics at the turn of the century. Speakers will emphasize concepts, recent developments, future progress and perspectives at the world level. Plenary talks should be understandable by physicists who are not specialists in a specific research domain. Specialized presentations will be held in parallel and poster sessions. Chairman is B. Frois (Saclay).

Further information: Frederique Dykstra, Institut de Physique Nucleaire, 91406 Orsay Cedex (France), Tel: +33 (0) 1 69 15 73 18 Fax: +33 (0) 1 69 15 44 75 or 64 70, e-mail: inpc98@in2p3.fr http://www-dapnia.cea.fr/Inpc98



President of the UK Royal Society Sir Aaron Klug unveils a bust of P.M.S Blackett by Jacob Epstein in the Blackett Laboratory of London's Imperial College to mark the centenary of Blackett's birth.

(Photo Nick Jackson, Blackett Publications)

Expo travelogue

With the Greek city of Thessaloniki acting as Europe's 1997 Cultural Capital, the Laboratory of Nuclear and Particle Physics of the Physics Department of the Aristotle University of Thessaloniki hosted CERN's new Travelling Exhibition.

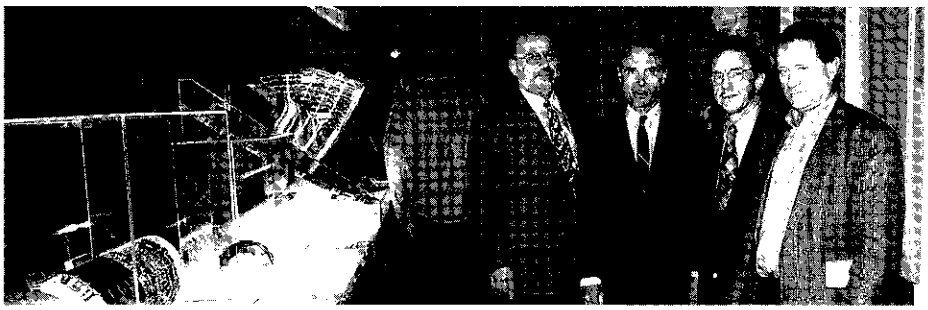
From 25 September to 30 November the exhibition proved a major success, attracting some 12,000 enthusiastic visitors, including some 8,000 from over 100 schools in Northern and Central Greece.

After a spell at CERN in December, the exhibition packs its bags this year for a comprehensive tour of Scandinavia. Already booked are Heureka in Vantaa, Finland, from 12 February to 22 March, Stockholm's Teknorama from 2 April to 31 May, Copenhagen's Experimentarium from 24 September to 8 November and Oslo's Teknoteket from 19 November to January 1999. The summer schedule has yet to be concluded.

Visiting Thessaloniki, Greece, from 25 September to 30 November, CERN's new Travelling Exhibition was a major success.

Who needs Quarks and Higgs?

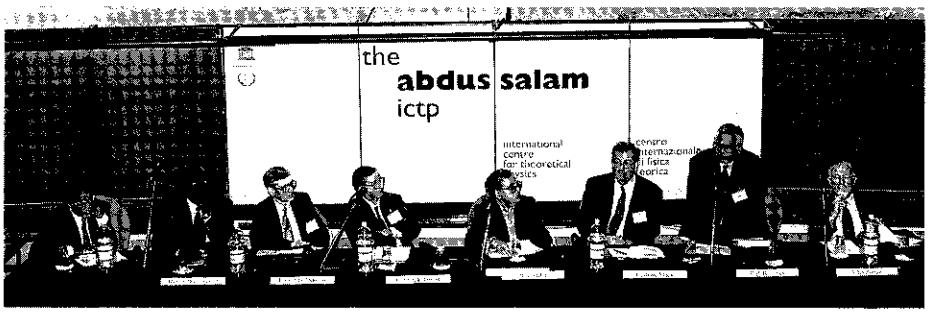
This was the title of an exhibition in Vienna from 6 - 27 November 1997 to mark the 150th anniversary of the Austrian Academy of Science, the



At the inauguration of the 'Who needs Quarks and Higgs?' expo in Vienna to mark the 150th anniversary of the Austrian Academy of Science. Left to right, exhibition organizer Meinhard Regler (Vienna), CERN Accelerator Director Kurt Hübner, and expo coordinators Ray Lewis (CERN) and Christian Gottfried (Vienna).

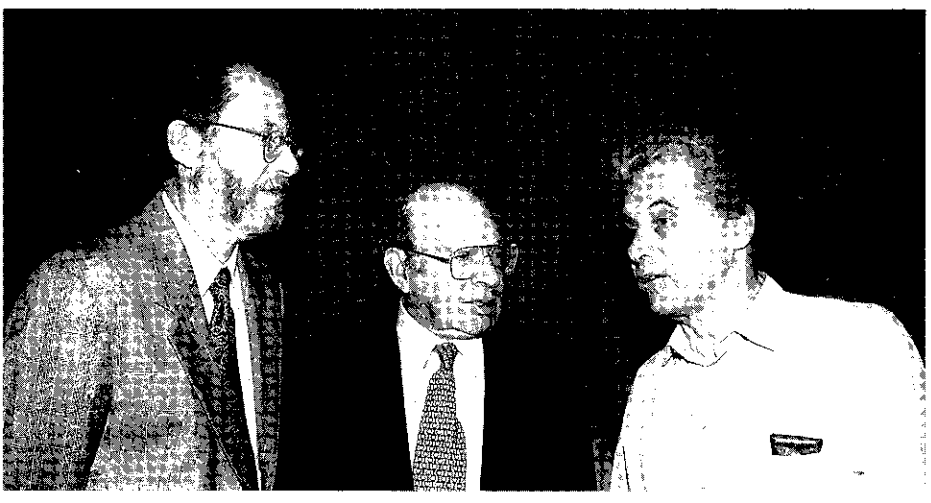
main sponsor of particle physics research in Austria. Its aim was to publicize recent results and underline the relevance and achievements of this science, with the accent on Austria.

An online connection to the WIRED system enabled presentation of actual electron-positron annihilations as seen by the Delphi experiment at CERN's LEP machine, and 'Schafft Wissen', a pioneer virtual reality scientific universe. CERN supported the exhibition by providing accelerator and detector modules, and a spark chamber showing the flux of cosmic rays.



Above: At a special memorial meeting to mark the first anniversary of the death of the Pakistani theorist and Nobel Prizewinner Abdus Salam, the International Centre for Theoretical Physics, Trieste, which he founded in 1964, was renamed in his honour. The Centre is a major focus for the world theoretical physics community.

Below: One of the guests of honour at the special Abdus Salam memorial meeting at the Abdus Salam International Centre for Theoretical Physics, Trieste, was Albanian President and theoretical physicist Rexhep Meidani (right), seen here with the centre's Director Miguel Virasoro.



A recent symposium on particle physics and neural computation at Tel Aviv University marked the 60th birthday of distinguished theorist David Horn (left); with (centre) particle symmetry pioneer Yuval Ne'eman, past president of Tel Aviv University and founder of the School of Physics and Astronomy; and Gabriele Veneziano of CERN, whose 1968 fruitful formulation of duality opened the way to new insights. Veneziano's talk at the symposium covered the evolution of duality in particle physics from the landmark 1967 Dolen-Horn-Schmid paper to today's compelling multi-dimensional string and 'brane' physics.

A special symposium at Kaiserslautern recently marked the 60th birthday of theorist Werner Rühl, who has also been a frequent visitor to CERN.

CERN Courier contributions

The Editor welcomes contributions. These should be sent via electronic mail to cern.courier@cern.ch

Plain text (ASCII) is preferred. Illustrations should follow by mail (CERN Courier, 1211 Geneva 23, Switzerland).

Contributors, particularly conference organizers, contemplating lengthy efforts (more than about 500 words) should contact the Editor (by e-mail, or fax +41 22 782 1906) beforehand.

At an unscheduled stop on the way from Oslo to the recent CERN Accelerator School (CAS) at Gjørik in Norway, Joel Le Duff of Orsay demonstrates how to change a bus fan belt under the watchful eye of CAS Leader Ted Wilson. As well as fixing fan belts, Joel is also the longitudinal dynamics mainstay of the school's team of lecturers.

DUKE UNIVERSITY
TENURE-TRACK FACULTY POSITION
EXPERIMENTAL HIGH ENERGY PHYSICS

The Duke University Department of Physics has an opening for a tenure-track Assistant Professor position in experimental high energy physics. The Duke research program is primarily focused on the CDF, OPAL and ATLAS experiments. Future activities will include analysis of Tevatron Runs I and II data, preparations of the CDFII detector for Tevatron Run II, and design and construction of the transition radiation tracker for ATLAS with eventual participation in experiments at the LHC. Applicants for this position should be capable of taking on major responsibilities in these experiments, and be committed to excellence in undergraduate and graduate teaching at Duke. The position is available starting September 1998. Immediate applications are requested. Please send resume and three letters of recommendation to:

High Energy Physics Search Committee
c/o Pat Hoyt, Physics Department
Box 90305
Duke University
Durham, NC 27708-0305

Duke University is an affirmative action/equal opportunity educator and employer.

ENGINEERING OPPORTUNITIES AT BROOKHAVEN NATIONAL LABORATORY

Brookhaven National Laboratory, a major R&D facility has two challenging positions available within the National Synchrotron Light Source Department.

Electrical Engineer
Position requires an MSEE degree and several years of applicable experience in the design of diagnostics hardware and electronics. Strong analytical background in control systems, both analog and digital, is highly desirable. Responsibilities will include the improvement of synchrotron light monitors, beam position monitors and complex orbit feedback control systems utilized in the facility's 800 MeV injector and storage rings. **POSITION #DD6163.**

Physicist/Engineer
We currently have a position available for an Accelerator Physicist/Engineer to work on the operation and improvement of the existing NSLS storage rings. Important areas of work include lattice modeling, orbit control, injection optimization and study of beam intensity limiting effects. Experience in the development of the related hardware and diagnostic equipment is desired, as well as skill in developing software application programs. You must be able to work independently and be proficient in coordinating activities. **POSITION #DD4512.**

We offer attractive salary and benefits packages and an exciting environment that is conducive to professional growth. For consideration, please forward your resume indicating Position #, to: Donna Dowling, Brookhaven National Laboratory, Associated Universities, Inc., HR Division, Bldg. 185, PO Box 5000, Upton, NY 11973-5000. Fax: (516) 344-7170, Email: dowling@bnl.gov. For the hearing disabled: TDD 516-344-6018. BNL is an equal opportunity employer committed to workforce diversity.

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Research Associate Position
High energy Physics
The Ohio State University

The Experimental High Energy Physics group at the Ohio State University invites applications for a postdoctoral research associate position with our CLEO program at CESR. In addition to our ongoing data analysis effort in heavy flavor physics, we are also involved with the CLEO III upgrade program where we have major responsibilities for the design and implementation of the Silicon Vertex Detector and data acquisition system. Interested candidates should send a letter of application, vitae, list of publications, and three letters of recommendation to Professor K.K. Gan, The Ohio State University, Department of Physics, 174 West 18th Ave., Columbus, Oh 43210-1106. *The Ohio State University is an equal opportunity employer and we actively encourage applications from women and minority candidates.*

UNIVERSITY OF UTAH
Tenure Track Position
in Computational Astrophysics

The Department of Physics at the University of Utah invites applications for an assistant or associate professor position, to begin in the 1998-99 academic year, in the area of computational astrophysics. Preference will be given to candidates with research experience in a range of applications of computational methods to theoretical astrophysics and who have the potential to develop collaborative research projects with others in the Department and elsewhere in the University. The candidate will be expected to play a major role in the strengthening of educational programs in computational physics at the undergraduate and graduate level. The University of Utah has a new interdisciplinary campus facility devoted to advanced networking and high performance computation, with a 64 node IBM SP and 60 node SGI Origin 2000.

Candidates should send a curriculum vitae and a list of publications and should arrange to have three letters of recommendation sent. Applications should be completed by April 1, 1998 and should be sent to:

FACULTY SEARCH COMMITTEE
DEPARTMENT OF PHYSICS
115 SOUTH 1400 EAST, ROOM 201
UNIVERSITY OF UTAH
SALT LAKE CITY, UT 84112-0830

The University of Utah is an Affirmative Action Equal Opportunity Employer. It encourages applications from women and minorities and provides reasonable accommodations to the known disabilities of applicants and employees.

POSTDOCTORAL RESEARCH ASSOCIATES
JUNIOR STAFF

The Nuclear Theory Group in the Physics Department at Brookhaven National Laboratory expects to have positions available at the Postdoctoral Research Associate and/or Junior Staff levels. The initial appointments would begin September 1, 1998. The Nuclear Theory Group has active programs in the theory of heavy ion collisions at ultrarelativistic energies and in the structure of nuclear physics. Applicants should send a *curriculum vitae* including names and addresses of three references to Dr. Robert D. Pisarski, Group Leader, Department of Physics, Bldg. 510A, Brookhaven National Laboratory, Upton, Long Island, New York 11973. BNL is an equal opportunity employer committed to workforce diversity.

BROOKHAVEN NATIONAL LABORATORY
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www.bnl.gov

GSI Darmstadt
a laboratory for heavy ion research offers

Postdoctoral Positions in Accelerator Physics

Applicants are invited to take part in one of the fields below

- design and measurement of magnets for accelerators and experiments including development of field sensors and their electronics for field controlled power supplies **(Ref. 61120-98.1)**
- development of the heavy ion synchrotron SIS for higher beam intensities and design studies for a new high current synchrotron/storage ring facility **(Ref. 64600-98.2)**
- development of ECR ion sources for highly charged heavy ions **(Ref. 64300-98.3).**

Applicants should have experience in the corresponding field.

The appointments will be limited to 3 years with a possible extension to a maximum of 5 years. Applicants should not be older than 32 years.

Women are especially encouraged to apply for these positions. Handicapped applicants will be given preference to other applicants with the same qualification.

Applications should be submitted not later than February 20, 1998, to

GESELLSCHAFT FÜR SCHWERIONENFORSCHUNG MBH
PERSONALABTEILUNG
PLANCKSTR. 1
64291 DARMSTADT

SUPERCONDUCTING MAGNET TECHNOLOGY
ACCELERATOR PHYSICS
TEXAS A&M UNIVERSITY
POSTDOCTORAL RESEARCH POSITION

Applications are invited for a post-doctoral position in superconducting magnet technology and accelerator physics. The accelerator research group at Texas A&M University is developing a 16 Tesla dual dipole for future hadron colliders, a superconducting magnet for oil well logging, and a stabilized cable using high temperature superconductor.

Applicants should have a Ph.D. in physics or allied subject, and good knowledge of superconducting technology and/or accelerator physics.

Interested persons should send a resume and arrange for three letters of reference to be sent to:

Prof. Peter M. McIntyre
Department of Physics
Texas A&M University
College Station, TX 77843

Applications should be received by March 15, 1998. Texas A&M University is an Affirmative Action/Equal Opportunity employer, committed to diversity.

DESY announces several

"DESY-Fellowships"

for young scientists in experimental particle physics to participate in the research mainly with the HERA collider experiments H1 and ZEUS or with the fixed target experiments HERA-B and HERMES. New fellows are selected twice a year in April and October.

DESY Fellowships in experimental particle physics are awarded for a duration of two years with the possibility for prolongation by one additional year.

The salary for the fellowship is determined according to tarifs applicable for public service work (IIa MTV Ang.).

Interested persons, who have recently completed their Ph.D. and who should be younger than 32 years are invited to send their application including a résumé and the usual documents (curriculum vitae, list of publications, copies of university degrees) until 31 of March 1998 to **DESY, Personalabteilung - V2 -, Notkestraße 85, D-22607 Hamburg**. They should also arrange for three letters of reference to be sent until the same date to the address given above.

Handicapped applicants with equal qualifications will be preferred.

DESY encourages especially women to apply.

As DESY has laboratories at two sites, in Hamburg and Zeuthen near Berlin, applicants may indicate at which location they would prefer to work. The salary in Zeuthen is determined according to II a, BAT-O.

Head
Laboratory Services

Fermi National Accelerator Laboratory (Fermilab), a renowned national laboratory dedicated to high energy physics research, has an exceptional professional opportunity available to lead one of its four major administrative service sections.

The seasoned professional we seek will support the operational needs of the Laboratory through the management of our Accommodations, Employment and Travel, Equal Opportunity, Human Resources, Medical, and Visual Media service functions. Additional responsibilities will include conducting management studies; developing and assessing quality assurance procedures; evaluating project development efforts for the modification of new administrative service features; and serving as the corporate pension plan administrator.

As a member of the Laboratory's management team and senior HR administrator, the qualified candidate will possess at least 10 years of relevant experience and the ability to interface with all levels of employees, U.S. Department of Energy (DOE) representatives, and stakeholders on a wide range of issues. Facility with modern management techniques, including team building, is also necessary. Some travel will be required.

Operated by Universities Research Association, Inc. for the U.S. DOE, Fermilab is located 40 miles west of downtown Chicago and offers an attractive compensation package. For consideration, please send a resume to: **Employment Department/970157, Fermi National Accelerator Laboratory, P.O. Box 500, Batavia, IL 60510-0500, U.S.A.** *Principals only. No phone calls, please.* To access Employment Opportunities at Fermilab and a complete description of this position, our URL is **[http://fnalpubs.fnal.gov/employ/jobs.html].** EOE M/F/D/V.

Fermilab

Royal Holloway
University of London

Lecturer in Experimental Particle Physics

As part of a programme of expansion in particle physics, a permanent lecturer post will be available from September 1998.

You would join a highly successful group, currently 25 members, including four academic staff, working on a research programme based on the ALEPH experiment at LEP, the BaBar experiment at SLAC and ATLAS at the LHC. We are also contributing to studies for a possible linear collider. You will be expected to participate in one of these projects and to contribute to the undergraduate and postgraduate teaching programmes of the Physics Department. Further expansion of the group is anticipated in the future and you will help in attracting support. Salary on Lecturer A Scale: £18,179 - £23,150 (including London Allowance).

Further details about the group and its research programme can be found on the World Wide Web (http://www.hep.ph.rhbnc.ac.uk). Informal enquiries may be made to Professor M G Green, Physics Department, Royal Holloway, University of London, Egham, Surrey TW20 0EX; telephone +44 (0)1784 443454, fax +44 (0)1784 472794, email m.green@rhbnc.ac.uk

Application forms and further particulars are available from the Personnel Office, Royal Holloway, University of London, Egham, Surrey TW20 0EX; telephone +44 (0)1784 443030, fax +44 (0)1784 473527, email s.watson@rhbnc.ac.uk Please quote reference MHA/1353.

Closing date for receipt of applications is 6th March 1998.

We positively welcome applications from all sections of the community.

Universität Zürich

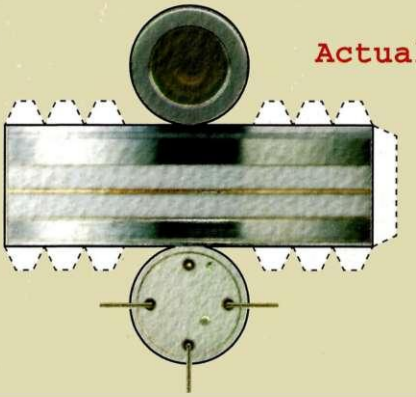
The Faculty of Sciences (Philosophische Fakultät II) of the University of Zürich invites applications for a faculty position in

Experimental Physics
Physics of Fundamental Systems

at the Physics Institute. The appointment will be made at the associate (Extraordinarius) professor level. There is a preference for candidates working in a field of Fundamental Systems like Astroparticle Physics, Atomic Physics, Gravitation, Neutrino Physics or at the medium energy facilities of the Paul Scherrer Institute (PSI). Candidates should have demonstrated their ability to carry out independent research. The research topic should complement the activities of the existing particle physics groups working at DESY, CERN and PSI.
The successful applicant is expected to participate in the teaching of basic courses in general physics and of particle and nuclear physics. The requirements are pedagogical experience, thesis and Habilitation or an equivalent qualification. Applicants should send their curriculum vitae (publication list indicating the five most important publications, a short statement of research interests, research plan, and teaching experience) before March 20, 1998 to the
Dekan der Philosophischen Fakultät II der Universität Zürich, Prof. Dr. H. Haefner, Winterthurerstr. 190, CH-8057 Zürich.
For further information please contact Prof. Dr. R. Engfer, phone +41 1 635 5720, fax + 41 1 635 5704. Suggestions for suitable candidates are welcome.

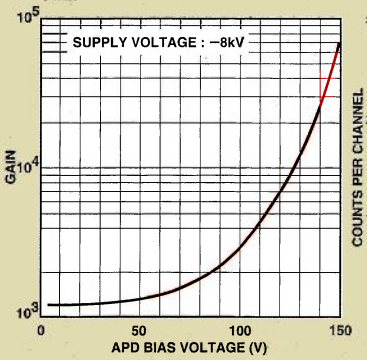
FEEL OF COMPACT!

Here is a full-scale fold-out drawing to show you just how small and compact our HPD (Hybrid Photo Detector) actually is. Try it yourself! Make this model with your own hands and get a "feel" for how small this device really is!

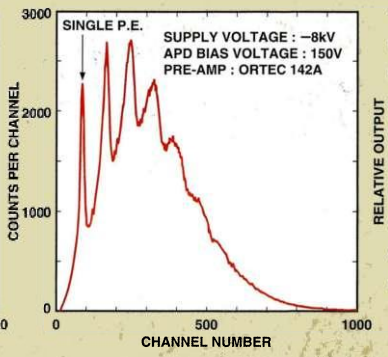


R7110U-07 Typical Characteristics

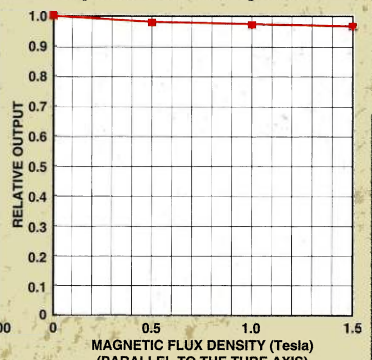
Gain



Photoelectron Spectrum



Output Variation in Magnetic Fields



COMPACT HPD

R7110U-07 : Si-Avalanche Diode Target Type
R7100U-07 : Si-Diode Target Type

Spectral Response : 160 to 850 nm
Effective Area : 8 mm Dia.
Supply Voltage : 8000 V Max.
Weight : 13.8 g

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